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**Claim Rejections**

Claims 1-16 were rejected under 35 USC 112, second paragraph as failing to comply with the written description requirements. The Applicant respectfully traverses and will address the Examiner's concerns herein.

- The Examiner states he could find no support for the newly claimed "sintering a high-z powder and glass powder mixture to form a first collimator tube". Respectfully, the Applicant traverses this rejection.

- First off. The applicant quotes from the specification as filed:

- "It is further contemplated that in one embodiment the collimator tube 14 may be comprised of any of the following ingredients: lead oxide (PbO), bismuth oxide (Bi<sub>2</sub>O<sub>3</sub>), tantalum oxide (Ta<sub>2</sub>O<sub>5</sub>), tungsten oxide (WO<sub>3</sub>), thorium oxide (ThO<sub>2</sub>), hafnium oxide (HfO<sub>2</sub>), silicon oxide (SiO<sub>2</sub>), potassium oxide (K<sub>2</sub>O), boron oxide (B<sub>2</sub>O<sub>3</sub>), aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), gallium oxide (Ga<sub>2</sub>O<sub>3</sub>), germanium oxide (GeO<sub>2</sub>), cerium oxide (CeO<sub>2</sub>), and antimony oxide (Sb<sub>2</sub>O<sub>3</sub>). In still another embodiment, metal tungsten powder can be added to the glass and sintered in with the glass powder to increase the density and x-ray stopping power. "

- This paragraph clearly describes making the collimator tube from tungsten powder sintered with glass powder.

Furthermore the very definition of SINTERING one need only consult Wikipedia to find:

**Sintering** is a method for making objects from powder, by heating the material (below its melting point) until its particles adhere to each other. Sintering is traditionally used for manufacturing ceramic objects, and has also found uses in such fields as powder metallurgy.

From this definition and the above paragraph, no other conclusion is available to one skilled in the art that the specification is describing sintering tungsten powder and glass powder in a described embodiment to form the collimator tube 14. If this were not sufficient, claim 21 as filed further reinforces this:

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“said drawn glass collimator tube comprises tungsten powder sintered into glass powder”.

The definition of sintering would not allow the misconstruction asserted wherein sintering approximates alchemy by turning tungsten powder into glass powder. Instead, anyone skilled in the art would clearly understand the specification and claim to be describing a glass tube formed by sintering glass powder and tungsten powder together.

- The Examiner has failed to provide any support for his assertion that glass powder and tungsten powder cannot be sintered into a glass tube as claimed. His sole basis is that these two ingredients (glass and tungsten) are taught by MacCragh to make cerment. The Applicant respectfully is confused at this rejection.

- o The Applicant calls the Examiner's attention to the Webster's New World Collegiate dictionary 3<sup>rd</sup> edition which defines cermet as:

- “a mixture of ceramic material and metal, that is tough and heat resistant; used in gas turbines, nuclear reactors, rocket motors, etc.

- Glass with a small amount of metal mixed in does not cease to be glass and surely does not become cerment. No more so that reflective metallic particles (done for tinting) put in an automobile windshield turn the windshield into a cerment windshield instead of a glass-windshield. The Examiner has provided NO support for the argument that sintering tungsten with glass cannot result in glass but only results in cerment. The MacGragh reference does not support this argument. It simply states that in some proportions, tungsten and silicon may be combined to form cerment. MacGragh does not define cerment. If a single particle of tungsten was added would it still be cerment? MacGragh is silent on this fact. Furthermore, glass is NOT silicon alone.

- The Examiner argues that claim 9 contains new limitations which are not supported “even remotely”. The Applicant calls the Examiner's attention to the specification as filed:

- o “After fusion of the block 36, a disc 44 can be cut off of the block 36 across the fiber axis 46 (see figures 7 and 8). The disc 44 is preferably cut to a desired

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collimator depth 48. The desired collimator depth 48 can be determined by the scattering reduction requirements of the collimator assembly". It is well known in the art that the Purpose of tailoring a collimator depth is to affect is performance characteristics. There can be no doubt that no unsubstantiated limitations were added.

- The Examiner argues claims 4 and 6 go to alternate embodiments. The Examiner argues there is no basis for combining them and alludes to the use of the word "another" in the specification. The examiner is mistaken: tungsten powder and glass powder can be sintered into a high-z glass tube (see above) so claim 4 need not read on another embodiment. Furthermore, there is no conflict between the tungsten powder additive and the other additives described.
- The Examiner deems the term "high-z" indefinite. The Examiner is encouraged to consult just a few of the following resources to see that both the industry AND the patent office itself recognizes High-Z as a clearly defined term within the art:

- o [http://www.lanl.gov/quarterly/q\\_spring03/muon\\_text.shtml](http://www.lanl.gov/quarterly/q_spring03/muon_text.shtml)

- wherein the well-recognized Los Alamos laws defines high-z as :

The new technique uses the fact that muons are more strongly deflected, or scattered, by nuclear or gamma-ray-shielding materials than they are by materials such as plastic, glass, and aluminum. This enhanced deflection occurs mainly because the atomic nuclei of nuclear and gamma-ray-shielding materials contain large numbers of protons, which exert large electrostatic forces on muons passing nearby. Since the number of protons is given by the atomic number Z, such materials are called "high-Z" materials.

OR Oxford Journals who utilized this term consistently when authors skilled in the art are writing papers:

<http://rpd.oxfordjournals.org/cgi/content/abstract/17/1-4/67>

<http://rpd.oxfordjournals.org/cgi/content/abstract/33/1-4/183>

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But perhaps most tellingly the USPTO has issued patents utilizing the term high-z without concern for its indefiniteness:

4,208,577

4,269,899

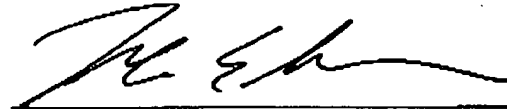
6,519,313

The Applicant respectfully requests reconsideration.

With this response, it is respectfully submitted that all rejections and objections of record have been overcome and that the case is in condition for examination on the merits.

Should the Examiner have any questions or comments, he is respectfully requested to contact the undersigned.

Respectfully submitted,



Thomas E. Donohue  
Reg. No. 44,660  
Artz & Artz, P.C.  
28333 Telegraph Road, Suite 250  
Southfield, MI 48034  
(248) 223-9500  
(248) 223-9522 (Fax)

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